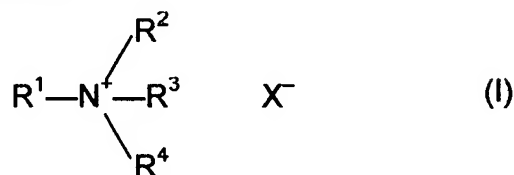


Claims

We Claim:

1. A corrosion inhibited fluid comprising:
a fluid comprising water; and
an amount effective to inhibit corrosion of a compound comprising the
formula:



where R¹ is a straight or branched saturated alkyl having at least 12 carbon atoms; R², R³ and R⁴ are independently lower alkyl of 1 to 4 carbon atoms, aryl, alkylaryl, or alkoxide where the alkoxide units constitute from 1 to 16 alkoxy moieties where the alkoxy moieties are independently from 2 to 4 carbon atoms, or any two of R², R³ and R⁴ are joined together to form cycloalkyl of 5 to 6 carbon atoms, or all three of R², R³ and R⁴ together with the N form a pyridinium ring, where R², R³ and R⁴ may be independently substituted with O or S; and

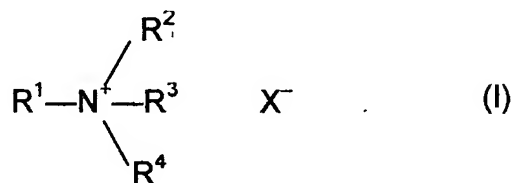
X⁻ is selected from the group of anions consisting of salicylate, thiosalicylate, sulfonate, and hydroxynaphthenate

where the fluid is flowing under turbulent conditions (Re >3,000).

2. The corrosion inhibited fluid of claim 1 where R², R³ and R⁴ are independently lower alkyl of 1 to 4 carbon atoms, or all three of R², R³ and R⁴ together with the N form a pyridinium ring; and where X⁻ is salicylate.
3. The corrosion inhibited fluid of claim 1 where R², R³ and R⁴ are independently ethoxylate chains having from 1 to 16 ethoxy groups.

4. The corrosion inhibited fluid of claim 1 where the proportion of corrosion inhibiting compound ranges from about 1 to 1,000 ppm based on the corrosion inhibiting fluid.

5. A corrosion inhibited fluid comprising:
a fluid comprising water; and
from about 1 to 1,000 ppm based on the corrosion inhibiting fluid of a
compound comprising the formula:



where R^1 is a straight or branched saturated alkyl having at least 12 carbon atoms;

R^2 , R^3 and R^4 independently ethoxylate chains having from 1 to 16 ethoxy groups; and

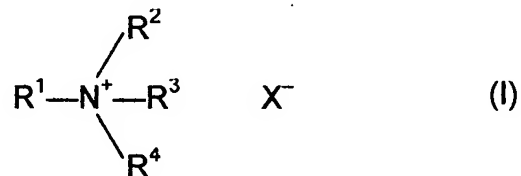
X^- is selected from the group of anions consisting of salicylate, thiosalicylate, sulfonate, and hydroxynaphthenate

where the fluid is flowing under turbulent conditions ($\text{Re} > 3,000$).

6. A method for inhibiting corrosion of metal in contact with a flowing fluid, where the method comprises:

flowing the fluid under turbulent conditions ($\text{Re} > 3,000$), said fluid comprising water, in contact with metal;

adding a corrosion inhibiting effective amount of a compound having the formula:



where R^1 is a straight or branched saturated alkyl having at least 12 carbon atoms;

R^2 , R^3 and R^4 are independently lower alkyl of 1 to 4 carbon atoms, aryl, alkylaryl, or alkoxide where the alkoxide units constitute from 1 to 16 alkoxy moieties where the alkoxy moieties are independently from 2 to 4 carbon atoms, or any two of R^2 , R^3 and R^4 are joined together to form cycloalkyl of 5 to 6 carbon atoms, or all three of R^2 , R^3 and R^4 together with the N form a pyridinium ring, where R^2 , R^3 and R^4 may be independently substituted with O or S; and

X^- is selected from the group of anions consisting of salicylate, thiosalicylate, sulfonate, and hydroxynaphthenate.

to give a corrosion inhibited fluid where the corrosion inhibited fluid has improved corrosion inhibition and improved drag reduction as compared with an otherwise identical fluid absent the compound.

7. The method of claim 6 where in adding the compound, R^2 , R^3 and R^4 are independently lower alkyl of 1 to 4 carbon atoms, or all three of R^2 , R^3 and R^4 together with the N form a pyridinium ring; and where X^- is salicylate.

8. The method of claim 6 where R^2 , R^3 and R^4 are independently ethoxylate chains having from 1 to 16 ethoxy groups.

9. The method of claim 6 where in adding the compound, the compound is added in an amount ranging from about 1 to about 1,000 ppm, based on the fluid.

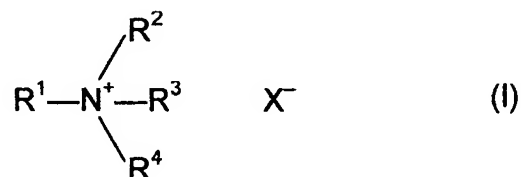
10. The method of claim 6 where the fluid is selected from the group consisting of aqueous fluids, aqueous and organic emulsions, oil-in-water emulsions, water-in-oil emulsions, and mixtures of water, an organic phase and gas.

11. The method of claim 6 where the corrosion inhibited fluid has improved corrosion inhibition as compared with an otherwise identical fluid having the compound where X^- is Cl^- instead.

12. A method for inhibiting corrosion of metal in contact with a fluid, where the method comprises:

providing the fluid selected from the group consisting of aqueous fluids and aqueous and hydrocarbon emulsions in contact with metal;

adding from about 1 to about 1,000 ppm of a compound having the formula:



where R^1 is a straight or branched saturated alkyl having at least 12 carbon atoms;

R^2 , R^3 and R^4 are independently ethoxylate chains having from 1 to 16 ethoxy groups; and

X^- is selected from the group of anions consisting of salicylate, thiosalicylate, sulfonate, and hydroxynaphthenate.